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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,725	05/03/2005	Eddie Huang	GB 020183	7823
24737	7590	05/02/2006	EXAMINER	
PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510			HARRISON, MONICA D	
			ART UNIT	PAPER NUMBER
			2813	

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/533,725

Applicant(s)

HUANG ET AL.

Examiner

Monica D. Harrison

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Hueting et al (6,600,194 B2).

2. Regarding claim 1, Hueting et al discloses a semiconductor device including a semiconductor body comprising a source region (Figure 1, reference 13) and a drain region (Figure 1, references 14 and 14a) of a first conductivity type, having there between a channel-accommodating region (Figure 1, reference 15), the drain region comprising a drain drift region (Figure 3, reference 14b) and a drain contact region (Figure 1, reference 14a), with the drain drift region between the channel-accommodating region and the drain contact region (Figure 1, reference 15), and the drain drift region being doped to a lesser degree than the drain contact region (column 5, lines 51-60), an insulated gate (Figure 1, reference 22) separated from the channel-accommodating region (Figure 1, reference 15) by a gate insulating layer (Figure 1, reference 24), and a localised region in the drain drift region juxtaposed with the channel-

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accommodating region, the localised region comprising alternating stripes of the first conductivity type and a second, opposite conductivity type, which stripes extend laterally alongside the channel-accommodating region and away from the gate (column 2, lines 24-37), the dimensions and doping levels of the stripes being such that the localised region provides a voltage-sustaining space-charge zone when depleted (column 4, lines 61-67 thru column 5, lines 1-12).

3. Regarding claim 2, Hueting et al discloses wherein the localised region adjoins the channel-accommodating region (column 2, lines 24-37).

4. Regarding claim 3, Hueting et al discloses wherein the localised region is laterally spaced from the gate insulating layer (Figure 1).

5. Regarding claim 4, Hueting et al discloses wherein the average doping level of the localised region is substantially the same as that of an adjacent portion of the drain drift region (column 2, lines 24-37).

6. Regarding claim 5, Hueting et al discloses wherein the gate is provided in a trench, the trench extending through the channel-accommodating region into the drain drift region (Figure 1, reference 11).

7. Regarding claim 6, Hueting et al discloses comprising a plurality of adjacent cells (Figure 3, reference 100), each including a gate (Figure 1, reference 22) in a trench (Figure 1, reference 20), wherein a deep diffusion region of the second conductivity type is provided between adjacent trenches, the deep diffusion region being doped to a greater extent than the channel accommodating region (column 5, lines 61-67 thru column 6, lines 1-10).

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8. Regarding claim 7, Hueting et al discloses wherein the lower boundary of the localised region is above the bottom of the gate trenches (Figure 1; column 2, lines 24-37).

9. Regarding claim 8, Hueting et al discloses wherein the channel-accommodating region is a region of an opposite, second conductivity type (Figure 1, reference 15).

10. Regarding claim 9, Hueting et al discloses a method of manufacturing a semiconductor device including a semiconductor body comprising a source region (Figure 1, reference 13) and a drain region (Figure 1, references 14 and 14a) of a first conductivity type, having there between a channel-accommodating region (Figure 1, reference 15), the drain region comprising a drain drift region (Figure 3, reference 14b) and a drain contact region (Figure 1, reference 14a), with the drain drift region between the channel accommodating region and the drain contact region, and the drain drift region being doped to a lesser degree than the drain contact region, and an insulated gate (Figure 1, reference 22) separated from the channel-accommodating region (Figure 1, reference 15) by a gate insulating layer (Figure 1, reference 24), the method including the step of: forming a localised region in the drain drift region juxtaposed with the channel-accommodating region, the localised region comprising alternating stripes of the first conductivity type and a second, opposite conductivity type, which stripes extend laterally alongside the channel-accommodating region and away from the gate (column 2, lines 24-37; column 4, lines 61-67 thru column 5, lines 1-12).

11. Regarding claim 10, Hueting et al discloses wherein the localised region forming step comprises implanting a dopant of one of the first and second conductivity types, defining a striped mask over the semiconductor body, and implanting a dopant of the other of the first and second conductivity types (column 5, lines 61-67 thru column 6, lines 1-24).

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica D. Harrison whose telephone number is 571-272-1959. The examiner can normally be reached on M-F 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Monica D. Harrison
AU 2813

mdh
April 28, 2006


CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800